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Disco

**ALFALFA
BOOK**



*Dakota Improved Seed Co.
Mitchell, So. Dak.*

Dakota Improved Seed Co.

Mitchell, South Dakota



Ever since the Dakota Improved Seed Company was organized in 1906 the annual catalog published by the company under the name of Wheeler's Seed Book, or as it is now known, the DISCO SEED BOOK, has been a family reference work in the farm homes of the Northwest. It has contained information of value on all farm and garden crops. Particular attention, however, has been given to alfalfa and corn. There has been so much demand for information on these two crops that we have adopted the plan of giving up one whole section of sixteen pages of the DISCO SEED BOOK to each of these two important crops. These two sections of the DISCO SEED BOOK are also being published under separate covers as the DISCO ALFALFA BOOK and the DISCO CORN BOOK. The catalog and price list of farm seeds, including descriptions and prices of all garden seeds and miscellaneous articles, is published as the DISCO ANNOUNCEMENT.

The problem of any organization is to render the greatest possible service to its patrons. It is the aim of this institution to make the DISCO SERVICE more efficient and of more value to its patrons each year. In the publication of these books and in giving special attention to hardy alfalfas and early varieties of corn for the North, we believe we are in line with progress in this direction.

The DISCO ORGANIZATION is at your service and we hope that every farmer and gardener in the Northwest will be benefited through its efforts.

Any of the four DISCO PUBLICATIONS is yours for the asking. The DISCO SEED BOOK, however, includes the other three, and if you are interested in farm and garden crops you should have this book on your book shelf at all times for reference.



Service

Disco Organization
Disco Information Bureau
Disco Alfalfa Nursery
Disco Registration System

DAKOTA
IMPROVED
SEED
CO.
MITCHELL
SO. DAK.



Publications

Disco Seed Book
Disco Announcement
Disco Corn Book
Disco Alfalfa Book

Disco Alfalfas

There is more money in alfalfa and corn for live stock than in any other single crop or combination of crops in the world.—W. A. Wheeler.

There may be some who have not given the matter much thought who will doubt the correctness of the above statement. Alfalfa is coming to be recognized as the great forage crop of the country. Those who have grown alfalfa, fed alfalfa and lived with alfalfa for any length of time know that this maxim is merely a statement of fact which goes without question. Recognizing this, it is clear then that the localities where these two crops can be grown are best for live stock. The territory where these two crops are grown is being extended every year. It is being recognized that there is a very small portion of the country that cannot grow these two profitably and successfully.

The Dakota Improved Seed Co. has given special attention to alfalfa ever since the birth of the organization in 1906. Alfalfa and corn have been our specialties and with alfalfa in particular, this company is recognized as the foremost dealer in high grade stocks in the United States. The adoption of the trade mark name "Disco," which word is easily recognized as being made up of the initial letters of the company name, and the formulation of a definite system of registration of alfalfas, mark an epoch in the history of the organization. Disco Registered Alfalfas and Disco Pedigreed Alfalfas are now recognized over the entire northern half of the United States as the standard strains of alfalfa seed. The name "Disco" is a familiar word, not only as applied to alfalfa, but as a mark of pedigree and quality on many other special kinds of seed as well. Wherever the name "Disco" is used as the name of a brand or in conjunction with numbers or other names as designating varieties, one can rest assured that the stocks or varieties designated in this way are the acme of type and quality. It does not imply perfection, for that is impossible, but it does imply the nearest to this that can be practicably reached at the present time and under present conditions.

The special alfalfa investigations and plant breeding work conducted by the Dakota Improved Seed Co. are the continuation of the work begun by the writer and Secretary of the company while holding the position of botanist of the South Dakota Agricultural College and Experiment Station some years before the organization of the company. This work was begun at the Brookings and Highmore Experiment Stations in 1904 and has been continued at Mitchell since 1907.

At left "A plant of Baltic Alfalfa (No. C. 25 W. A. Wheeler). An ideal type for very cold regions." (U. S. Dept. of Agr. B. P. I. Bul. 258.)

At right, a plant of Disco 19A Alfalfa four months from seed, grown under extremely dry conditions.

Both plants show the spreading crown and branched roots so typical of hardy alfalfas.

The plant breeding work started by the writer at Highmore in 1904 is recognized by the U. S. Department of Agriculture and State Experiment Stations as the pioneer work in the breeding of hardy alfalfas for northern conditions. The parent stocks selected at that time for investigational work in plant breeding and the selections from these stocks have served as the foundation for most of the plant breeding work in alfalfa in the northern states and Canada. The Disco Pedigreed alfalfas represent the "cream" of these selections. The Disco Registered Acclimatized alfalfas represent the best of native and other stocks selected with the information as to type and characteristics obtained through years of plant breeding work with this crop.

These few words state briefly the significance and meaning of the term "Disco Alfalfas." We have laid a foundation for the handling of the best in alfalfa seed that is deeper seated than that of any other state or private organization in the country. We have spent much time and money in bringing Disco Alfalfas to the prominence that they now have and it is our aim to continue in this work and not only keep abreast of the times, but to lead the procession.

The reading of the few pages following, giving some brief cultural directions and descriptions of alfalfa, will give anyone a more accurate knowledge of this crop. Much more could be said than has been given in these pages, but it has been the writer's plan to make this treatise short and to the point.

DAKOTA IMPROVED SEED CO., Mitchell, So. Dak.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.



Hardiness and Acclimatization

In selecting alfalfa seed for the Northwest one of the principal points to consider is the ability of the strain to survive severe winters. There are certain strains or varieties of alfalfa which possess this hardiness to a very marked degree and such should be chosen in preference to the more tender ones. The alfalfa plant shows a great range in cold resistance. Some strains will winter-kill in severe winters in the latitude of Kansas and Missouri, while there are other strains that survive the most severe winters of North Dakota and Canada. There are a great many other strains which range in hardiness between these two extremes.

The best policy is to secure an alfalfa that has been tried out under the most severe conditions, or in other words, is of known hardiness. Disco Registered Alfalfas, such as Disco-Baltic, Disco-Grimm, Disco Nos. 28 and 38, Disco 19A, 32C and 62B, and perhaps a few others, come in this class. Even though the price of the Disco Registered Alfalfa seed may be double that of ordinary alfalfa of unknown record, the actual expense of

securing a good stand under northern conditions is very little if any greater, and one has the assurance that they are not likely to be winter-killed the first hard winter. It is hardly necessary to use more than one-half the amount of seed of the hardy Disco Registered Alfalfas that is necessary of even the best home grown commercial seed. It is, of course, very poor policy and out of the question for progressive farmers to use seed from the extreme South, for it would be simply throwing away money or running the risk of possibly one or at most, two or three years of cropping if the winters were mild.

It appears that some strains of alfalfa have been improved very much by acclimatization. I do not wish to be understood as implying that all alfalfas are of the same origin, or that the same results can be secured through acclimatization in the same period of time with all strains. It appears from experiments that the hardest known alfalfas in the United States today are the Disco Registered Alfalfas mentioned above that have been grown in the extreme North for quite a number of years. There is considerable evidence to show that much of this extreme hardiness was acquired through acclimatization.



Representative plants of the Hardy and Non-hardy type of crowns of four-year-old alfalfa taken from the same nursery, grown as single plants under the same conditions. The plant on the right, the common or Southern type; the plant on the left, a fair sample of Baltic alfalfa, a variety found growing near the little town of Baltic, South Dakota. (Bul. 181, Col. Ag. Exp. Sta.)

Relation of Type to Hardiness

From Colorado Experiment Station Bulletin No. 181, by Prof. Philo K. Blinn, I quote the following:

"In Minnesota and in North and South Dakota, where the winter conditions are far more severe than in Colorado, the tests of alfalfa varieties for cold resistance have been very interesting. In several large variety tests the same results have been secured, namely, the Grimm, Baltic, and Turkestan varieties of alfalfa have proven to be the most hardy of a large list of alfalfas from different parts of the world. These results tally almost exactly with the results of similar tests in Colorado. All of these three strains have a distinct type of crown as compared to the type of crown found in the non-hardy varieties. The fact is, the hardy strains of alfalfa have spreading crowns with underground root stocks and shoots with buds which are protected by soil, from winter freezing.

"The non-hardy strains of alfalfa have more upright stooiling crown with the bud areas very near the surface, exposed to winter freezing, thawing and drying out. Hence, there is a decided relation between the TYPE OF THE CROWN and its tendency to winter-kill.

"The stooiling traits of the hardy strains are shown in the early seedling stage. This is illustrated in figure on another page which shows some seedlings of Grimm's alfalfa only six weeks from seed. The other figure on the same page shows some ordinary Spanish alfalfa of the same age. Both lots were taken at the same time and under the same conditions in the field. The heavy stooiling habit of the Grimm's alfalfa is very evident. The significant value of this trait can hardly be overestimated. It not only affords immunity from winter losses, but the protected underground buds are less liable to injuries from over-pasturing or attacks from grasshoppers. The spreading crown seems to be associated with a very much branched surface root system in addition to the deep tap root. This growth habit makes surface moisture easily available. Hence, it is not surprising that the Grimm's and Baltic alfalfa should have proven to be the best type for dry conditions. This is confirmed in the dry land tests.

"The Grimm's and Baltic strains of alfalfa have revealed the most promising traits in the Colorado tests, but the Baltic seems to be in the lead in seed production and slightly in the lead in hay yields. Apparently there is little difference except in seed yield, yet there are contrasts in the relative merits of different selections which are evidently transmitted. Hence, the strains of alfalfa can be made more uniform through seed selection."

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.



Photographs of portions of the alfalfa nurseries of the Missouri and Indiana State Experiment Stations to show winter-killing of tender strains even under a milder climate.

Missouri alfalfa nursery on left, showing check row grown from Nebraska seed winter-killed and a row of hardy alfalfa on each side in perfect condition. The row on left of center is Minnesota Grimm or Disco 25 and is the best row of the entire series.

Indiana Alfalfa nursery on right, showing several rows winter-killed, while the rows of other hardier strains survived.

Disco Registered Alfalfas

For some years the Dakota Improved Seed Co. has been handling the very best alfalfa seed stocks that could be secured in the Dakotas and Montana. It has always been the aim to secure those having the best record and those grown for the longest time under northern conditions. Such stocks of seed have been handled under stock numbers and have been designated in various ways. The Dakota Improved Seed Co. now presents for the first time a system of registration of alfalfa seed that just exactly meets with our ideas as to what ought to be done in this direction.

The idea of formulating a plan of registration so as to check up all special stocks of native, acclimatized and pedigreed strains so that they would be known definitely for all time by a **Disco Register Number** occurred to the writer early in 1913. The initial plan was discussed in detail with the agronomists and other field crop investigators of the State Experiment Stations of North and South Dakota, Minnesota, Wisconsin, Michigan, Ohio, Indiana, Illinois, Missouri, Iowa and other states before it was presented to the public. Every one with whom this was discussed has signified his most hearty approval of the plan and by most of them it is considered the only feasible plan of getting down to a working basis and knowing just what one is doing in experimental work with this crop as well as with others. The ultimate aim of the **Disco Registration System** is that it will be applied only to pedigreed stocks. It will be many years, however, before pedigreed alfalfa seed can be produced in sufficient quantities to warrant the limiting of registration numbers to pedigreed stocks only. In the meantime, Disco numbers will be applied to desirable acclimatized native or other stocks that have been grown for ten years or more in the Dakotas or Montana or under northern latitudes or equally severe conditions. Many of these stocks have records of from 25 to 30 years in the Dakotas, for example, **Disco Numbers 28 and 38**, but for convenience we have set an arbitrary minimum record of 10 years of acclimatization for all Disco registered strains of seed.

There will undoubtedly be other plans of registering alfalfa seed proposed during the next few years, but they must not be confused with the **Disco System** of registration. No number means anything without being tied up to the name of the organization giving the number, so the name **Disco** should always be used in connection with the numbers in order that they may mean just what they should.

The advantages of using only **Disco Registered Alfalfa Seed** are very apparent to anyone who handles farm crops. The up-to-date farmer would no more think of going to his neighbor and buying just seed oats than he would think of going out of the business. Instead he would ask for Swedish Select or Sixty-day oats, or whatever variety or recognized registered stock he wanted. Why should not the same line of reasoning be applied to alfalfa seed? Instead of buying just alfalfa seed, buy **Disco No. 28** or **Disco No. 38** or any other Disco registered number, and thus be able to know just what you are getting and be able to secure more seed of the same number or its equivalent later if desired. The Dakota Improved Seed Co. will keep the most complete records of these numbers and will thus be able at any time to tell what ones are best for certain localities or certain conditions. This system will enable the grower to select just the strains that have given the best records in his particular locality.

As outlined on another page, we are making special trial collection offers which will enable anyone to test a number of registered alfalfas in comparison with the ordinary commercial strains with very little effort and expense.

The time has now passed when up-to-date farmers will buy just alfalfa seed or just Western, American, Turkestan, Montana or Kansas seed, but will buy **Disco Registered Alfalfa Seed** listed under the system approved by the best Agricultural Experiment Stations and alfalfa authorities in the country.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Preparation of Soil

Because of the newness of many of the farms of the Northwest, alfalfa has often been sown upon newly broken prairie, sometimes with only very little preparation of the soil. Occasionally very good returns are received from this kind of treatment. In general, however, the use of new ground is not to be recommended. The best preparation of soil for a crop of alfalfa is to have it used for a small grain or cultivated crop for three or four years previous to the sowing of the alfalfa. If the land is old land and has been deeply plowed and well cultivated in the past, it can be prepared immediately for alfalfa. The reason for giving new land three or four years of cultivation before sowing the alfalfa is very apparent, if one gives the matter slight thought. This treatment is necessary to get the surface soil worked to a depth of 7 or 8 inches and to hold the precipitation in this surface soil and allow it to permeate into the subsoil for two or three years before the alfalfa is sown.

The deeper the soil of the alfalfa field is plowed the year previous to the sowing of alfalfa, the better. Alfalfa should not be sown upon a newly plowed field. If the field upon which it is to be sown has been plowed the same year, it should be thoroughly cultivated and worked down so that there is no loose soil under the surface before the alfalfa seed is sown, and it is better to have from four to six weeks elapse after plowing and deep cultivation before sowing the seed. I would consider an ideal preparation to be as follows: Plow the ground either in the fall or very early in the spring and if possible disk the land before plowing. As early as possible in the spring or immediately after plowing, if the plowing is done at that time, harrow the ground very thoroughly, so as to firm the soil below the surface. Repeat this harrowing at intervals of ten days or two weeks up to the seeding time, which will be the middle of May or later. In this way practically all of the weed seeds that are within an inch or two of the surface will have germinated and have been destroyed. This treatment is of the greatest importance, for there is nothing that tends to injure young alfalfa plants more than crowding by weeds. Just before seeding drag the field thoroughly and prepare it as you would for the finest garden vegetables. Don't be afraid of putting too much work in preparing the surface of your field, leveling and putting it in the best state of tilth. Every dollar spent in this way will pay as big interest as any investment made on the farm. One of the finest fields of alfalfa that I know of in the state of South Dakota, which is on the farm of Isaac Lincoln of Aberdeen, owes its present value and condition to two things: First, the most thorough preparation of the seed bed, and, second, the fact that it is Disco-Grimm Alfalfa, which is one of the hardiest varieties known.

Care During the First Season

Even where the strictest precautions are taken to eliminate weeds before seeding alfalfa, there will probably be quite a percentage of weeds appear at the same time as the alfalfa. These can to a large extent be destroyed just as soon as they are high enough to be reached by a mowing machine. When this is done, set the mower a few inches from the ground, so as to just clip the tops of the weeds and the alfalfa. The alfalfa will start along and grow faster than before and most of the weeds will be checked in growth. It may be necessary to make a second or third clipping during the season. If the weather has been particularly favorable to the growth of the alfalfa, the last cutting may be used for hay, but it should not be made so late that there is not time enough left for the alfalfa to make a good growth before winter to protect it from winter-killing. Alfalfa seems to be more susceptible to winter-killing the first winter after it is sown than later. One should do everything possible to protect his fields from the effects of severe winters. Even with hardy strains it is probably true that they will be better off and produce a better growth and larger yield of hay the following season if sufficient winter protection is given by late fall growth.

Cultivation of Alfalfa

In the production of alfalfa under dry land methods, it is proper to apply all the knowledge that we have regarding the holding of soil moisture for the use of the crop. It is true that alfalfa will survive without a large supply of water, but every pound of a limited supply of water that we can save can be profitably used by this crop. In holding moisture in an alfalfa field about the only thing we can do is to cultivate the field when conditions are right. An ordinary disk may be used for this purpose, but far better than this, one of the special alfalfa cultivators can be used. Cultivation can be done at any time after the second year from seed just after cutting the crop of hay or before the growth has started in the spring if the ground is dry enough to work up readily. This process not only serves to work up the ground and hold the moisture, but has a tendency to break up the crowns of the alfalfa and cause them to shoot out from lower points and give the appearance of thickening the stand. It also tends to keep the field free from weeds.

Cultivating the alfalfa, if properly done, is one of the most valuable practices to follow and has other beneficial effects besides that of conserving the moisture. If done at the right time, in the right way, there is no danger from the practice. In fact, an alfalfa field after cultivating may appear to be chopped all to pieces and yet recover from this treatment to the extent of producing 30 to 50 per cent more hay in the succeeding crop or crops than it did previous to treatment.

Several kinds of cultivators are in use for cultivating alfalfa. The various machines using the spring-tooth system seem to be giving better results than either the spike-tooth or ordinary disk, though any tool that will stir up the ground without cutting off the alfalfa crowns is useful.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.



Portion of Alfalfa Nursery at the Michigan Agricultural Experiment Station. The rows on the left of man standing in center are a number of Disco Alfalfas furnished to the station for trial in 1910. A strong contrast is here shown between the extremely hardy Disco Alfalfas and the tender common strains.

Disco Pedigreed Alfalfas

The work of developing pedigreed strains of hardy alfalfas was begun by the writer at the Brookings and Highmore Stations in 1904. As a result of this work there have been produced a number of strains of alfalfa that show a decided superiority over the common alfalfa as well as over the parent stocks from which the pedigreed strains were selected and developed. Because of the numerous obstacles in the way of conducting this line of work, the progress made has been necessarily slow and the amount of seed produced from improved strains necessarily small. Even under these adverse conditions, the writer has made very marked progress during the past ten years and has developed some very desirable strains which can be offered in a small way to Experiment Stations and others interested in this line of work.

The pedigreed strains growing in the **Disco Alfalfa Nursery** today represent selections from the first to the seventh generation. Practically all of them trace back to the parent stocks of Disco-Grimm, Disco-Baltic and Disco-Turkestan, all of which have developed remarkable records of hardiness and production. In the Disco common nursery there are about 100 stocks of alfalfa seed under trial from various sources. In addition to the common nursery, there are also isolated plots of the best **Disco Pedigreed Alfalfas**, each of which represents the direct product of the seed of a self-pollinated individual of one of the most desirable strains. These self-pollinated plants have back of them several generations of open-nursery selection and the self-pollination is only done to bring about closer adherence to the type of plant sought in making the selection. Quite a diversity of types can be seen in our common nursery between the stocks from different sources, but more pronounced lines of demarkation are apparent between the pedigreed selections because of their closer conformity to special types.

We believe that our work in the development of pedigreed strains of alfalfa is the most important work that we have done and ranks as the leading work of the kind in the country today. In fact, we know of no other commercial organization in the world conducting the kind of investigational work with alfalfa that we have done and are continuing to do. The Disco alfalfa nursery is visited very frequently by Experiment Station workers from all over the United States and Canada, and the writer is quite freely consulted by the foremost authorities in the country on this line of work.

Until the Disco pedigreed strains have been increased to much greater quantities than at the present time, they will have to be offered at high prices and will probably be used only by Agricultural Experiment Stations and others particularly interested in the increase of alfalfa for seed. The general stocks of Disco-Baltic, Disco-Grimm and Disco-Turkestan, though not in a strict sense pedigreed alfalfas, are usually grouped with the pedigreed strains because of their remarkable records of hardiness and production. In the numbering of Disco registered pedigreed strains, a letter is often used following the number to designate the parent stock from which the selection has been developed. Among the registered pedigreed selection numbers from these three parent stocks that show up most prominently at the present time are the following:

From the Baltic—Disco Numbers 11C, 12C, 13C, 31C, 32C and 84C.

From the Grimm—Disco Numbers 1A, 2A, 5A, 6A, 10A and 19A.

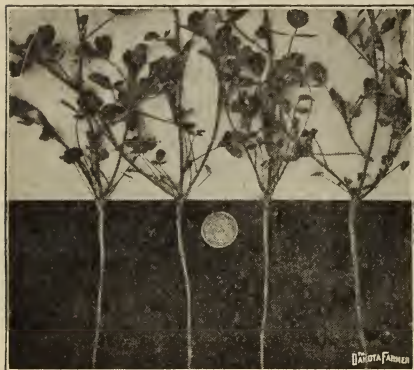
From the Turkestan—Disco Numbers 13B, 14B, 15B, 16B and 62B.

The letters A, B, and C simply designate the parent stocks from which the pedigreed selections have been made.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Seeding

TIME OF SEEDING—When one comes from the East to the farms in the Middle West one of the most noticeable things among the farming operations is early sowing of most farm crops. It seems to be a mania with most western farmers to get the seeds into the ground just as soon as the snow is off in the spring. I must admit that in many cases the best returns are gotten in this way.



Seedlings of the Grimm's Alfalfa, six weeks from seed, showing the early stooling traits. (Col. Agri. Exp. Sta. Bul. 181.)

able moisture conditions the alfalfa seed will germinate much quicker and make a much more rapid growth in warm weather than in cool weather. Many seedlings made during the month of April take so long to germinate and make such a weak growth that they are likely to be crowded by weeds or otherwise stunted before they get half a start.

RATE OF SEEDING—It is often recommended that alfalfa be seeded at the rate of from 20 to 25 pounds of seed per acre. When this rate of seeding is recommended the apology or excuse for the recommendation of so heavy a seeding is usually that "practice has shown this seeding to give the best returns." I myself some years ago recommended as high as 20 pounds of seed to be sown per acre with this same explanation. This, however, is a great reflection on our methods of culture and preparation of the ground. Every pound of alfalfa seed that is sown to the acre places upon each square foot of ground about 5 seeds. If it were practicable to distribute the seed evenly over the entire field and every seed produced a good plant, this would be more than would be necessary for a good stand of alfalfa under any conditions. Twenty pounds of alfalfa seed sown per acre would at this estimate place 100 seeds to each square foot, which is several times as many as necessary.

I am inclined to think that one of the chief reasons for the apparent necessity of heavy seeding has been the lack of adaptability of the strains of alfalfa that have been grown to the conditions, and to careless preparation of the seed-bed. In the alfalfa-producing sections of the extreme West and Southwest a seeding of 20 pounds per acre would be considered very wasteful. Six to ten pounds are usually considered sufficient. If adapted strains were used and thorough preparation of the soil made in the dry land regions of the middle west, it appears to me that there would be no more necessity for the seeding of 20 to 25 pounds here than there would be in the older alfalfa-producing sections. In fact, I have gotten in the habit (which habit, by the way, has been secured by observation and experience) of recommending for the Disco-Baltic alfalfa, Disco-Grimm alfalfa and other adapted strains, the seeding of only 8 to 12 pounds per acre. With seed of ordinary percentage of purity and germination this quantity should be sufficient.

In Minnesota, Iowa and states east of these it is still the practice to sow 15 pounds or more seed per acre. My experience does not extend far east, but I believe that results will soon show that the lighter seeding of adapted strains is preferable even for the more humid conditions of the eastern states.

(Continued on page 8.)

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.



Seedlings of the ordinary Spanish Alfalfa, six weeks from seed, showing the upright growth and less tendency to stool or form a crown. (Col. Agri. Exp. Sta. Bul. 181.)



Load of alfalfa seed weighing 5,930 lbs., produced on 20 acres of land near Mitchell, S. D.
For this load the grower received a check for \$1,008.30.

Disco-Baltic and Disco-Grimm Alfalfa

Disco-Baltic—S. D. Exp. Sta. No. 167—Disco Register No. 78.

Disco-Grimm—S. D. Exp. Sta. No. 162—Disco Register Nos. 20 and 25.

The Baltic alfalfa and the Grimm alfalfa are so nearly alike in all characteristics that it is difficult to treat of one without bringing in the other.

It may be that the Baltic and Grimm alfalfas are from the same original stock. Whether this be true or not, we have not been able to determine from records. It is true, however, that any differences that can be detected between the Baltic and Grimm in any test are no greater in value than the differences often found between two stocks of Grimm alfalfa, whose origin is definitely known.

The Baltic alfalfa was first brought to the writer's knowledge in 1904 by Mr. W. F. Kelly of Renner, S. D., near the town of Baltic. Mr. Kelly and Mr. Evans of that place had grown this alfalfa up to then for about ten years. Mr. Kelly called my attention to this stock while I was connected with the South Dakota Experiment Station and furnished me enough seed for trial plots.

Since the Baltic alfalfa was first called to my attention by Mr. Kelly, it has been tested at various stations in the United States and Canada. Reports of these tests have been made from Minnesota, North and South Dakota, Colorado, Oregon and Canada.

The Grimm is a regional stock imported into Minnesota by Mr. Grimm in 1857. It has been grown in the vicinity of Mr. Grimm's home near Excelsior, Minn., ever since its first introduction. It has been tested at nearly all the northern experiment stations in comparison with other stocks, and never to my knowledge has it been excelled by any other variety in cold resistance. If the fame of the Grimm alfalfa rested upon just one test in one locality, there might be a question as to the value of its record, but when one considers that it has been tested at the Minnesota Experimental Stations, at the Fargo and Dickinson stations in North Dakota; Brookings, Highmore and Belle Fourche stations in South Dakota; Indian Head, Saskatchewan and many other points, and has never shown any winter-killing to speak of, its record is certainly remarkable.

Disco-Turkestan

S. D. Experiment Station No. 164—Disco No. 77.

S. D. Experiment Station No. 240—Disco No. 60.

A great variation is shown in the different importations of Turkestan alfalfa. Some are extremely hardy, while others are more or less tender. In our experience with a large number of importations we have found that some of those tracing back to S. P. I. No. 991, imported by the U. S. Department of Agriculture in 1898, are the most promising. The two numbers mentioned here and selections from them seem to be perfectly hardy in North and South Dakota and Minnesota; Disco 62B, a pedigreed selection from Disco No. 77 is probably the best Turkestan alfalfa on record at the present time. It is perfectly hardy, a good type of plant and a good seed producer.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

(Continued from page 6.)

METHOD OF SEEDING—I have usually recommended sowing the seed broadcast and dragging lightly after seeding. My object in this has been to distribute the plants over the entire area instead of having them in rows. I hardly think my reason is good. More seed would naturally be wasted by broadcast seeding than by seeding with a drill and the rows sown with an ordinary grain drill would be close enough for alfalfa plants. One objection to drill seeding has been the tendency to sow too deep. In extremely light soil this deep seeding may be desirable, but under most ideal conditions for the seeding of alfalfa, deep seeding is detrimental. I would say that in most soils and under ordinary conditions, seeds should be sown from one-half to one inch deep.

There are many opinions expressed as to whether a nurse crop is desirable or not. A survey of these views would, however, show that a majority of the authorities preferred seeding alone in midsummer. It appears to the writer that results in eastern South Dakota, Minnesota and other localities of greater humidity show that the seeding of alfalfa with a light nurse crop of barley has been very successful and in many cases better than where the alfalfa is sown alone.

The advantage of the sowing with a nurse crop is that it is better adapted to the general farmer. It fits into his routine or scheme better and he will be more likely to sow this way than if he waits to give his land the preparation and care necessary for sowing alone.

Inoculation

ALFALFA—CLOVERS—SOY BEANS—COW PEAS and all other pod growing plants called legumes enrich the soil through the action of small bacteria growing upon their roots. These bacteria live only upon the roots of legumes and by an action of their bodies extract the free nitrogen of the air, and deposit this around themselves as nitrates, thus forming little sacks or nodules on the roots of the growing plants. These sacks furnish the growing plant with all the nitrates it requires, and still leave large amounts unused in the soil ready for future crops or other crops growing at the same time with the legumes. Quoting from bulletin issued by the Department of Agriculture in January, 1908, "It is worse than useless to attempt to grow any leguminous crop without being certain of the presence of bacteria which enable the plants to fix free nitrogen."

The method of transfer of soil for inoculation is both costly and dangerous—weed seed, soil and plant diseases are transferred in this way. All inoculations should be done by means of the pure cultures of nitrogen-gathering bacteria which are free from contamination and contain only active bacteria of the proper kind. These standard inoculations are known as Farmogerm, and we strongly advise the use of the cultures whenever you plant legumes of any description.

THE STANDARD INOCULATION

FARMOGERM

HIGH BRED NITROGEN GATHERING BACTERIA

What Farmogerm Is

Farmogerm is a pure culture, or growth of nitrogen-fixing bacteria that have been selected and bred up to transform large amounts of nitrogen from the air into soluble nitrates. These bacteria are grown in a jelly, or food, in which they remain active for long periods of time, and sent out in a bottle which admits the necessary supply of pure air, yet keeps out destructive contaminations.

Alfalfa can be grown on practically every farm in the United States where the soil is well drained and contains sufficient lime and bacteria.

Regular or Farm Size.....	5 acres	\$9.00
Farm Trial Size.....	1 acre	2.00
Garden Size	¼ acre	.50

For alfalfa the above estimates of cost are based on inoculating 20 pounds of seed per acre. In South Dakota and other western states where a smaller amount of seed is sown per acre the expense will be proportionately less. For example, a one-acre-size bottle will inoculate 20 pounds of seed, whether it is sown on one- two or four acres. If on two acres the cost would be about one dollar per acre.

Inoculation of Disco Alfalfa Collections

On another page of this book we are offering trial collections of alfalfa seed. For the inoculation of these collections we have arranged for a trial size bottle of Farmogerm sufficient for either collection. These trial bottles can be furnished for 25c each. Orders for this size must be in hand before March 15th and will be mailed by or about April 1st.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Commercial Alfalfa Seed

Commercial alfalfa seed is usually offered under the name of a locality or the trade-marked brand of the particular seedsmen from whom the seed is obtained. The more common locality names used are American, Turkestan, European, Western, Northern-grown, Montana, and Dakota. Sometimes these names mean something, but more often they do not. Some dealers who use these names use them indiscriminately and attach no significance to them whatever, while others are careful and exercise good judgment in source of seed supply.

In the buying of commercial alfalfa, one is to a degree patronizing a lottery. You are buying alfalfa seed that may have come from more tender stocks of the extreme tropical South, or you may be buying extremely hardy acclimatized stocks of the North. The number of chances that one is taking in this lottery may be lessened by certain information given regarding the seed. It is very seldom that any further information is given on commercial stocks than to state in what general region it was grown, and, as I have stated before, this may mean something and it may not. For example, the name "Turkestan" is applied to all alfalfa coming from Turkestan, and yet Turkestan has a range north and south almost as great as the United States, so this means absolutely nothing in respect to hardiness, and not much of anything in many other characteristics. If added to this information, a more specific locality could be given and in addition to this the number of years that it had been grown in that locality, then one has a line of information which makes this stock of a greater or lesser value, depending upon the weight of this information.

The difficulty in the past in the handling of commercial alfalfa and in seedsmen endeavoring to get this information for their customers has been the fact that such information incurs additional expense in securing the stock, and comparatively few farmers have taken this into consideration in the purchase of seed. The seed has been purchased merely on a comparison of the quotations given and on the apparent quality of seed as examined by sample.



Nothing Else Like It for Hog Pasture.

Anyone who has handled any quantity of alfalfa in the North, knows that the brightest and finest looking alfalfa seed grown comes from the Middle West and usually from more southern latitudes or from irrigated fields. It is very seldom that the seed of pedigreed and acclimatized northern stocks shows up nearly as well as that of common alfalfa from more southern points.

I do not wish to say anything to discourage in any way the sowing of alfalfa in the Northwest. In fact, I wish to encourage it in every way, but the one point that must be held in mind by everyone who wishes to grow alfalfa in the North is to look to the hardiness of the seed sown. If you sow commercial alfalfa, get what information is available regarding it and weigh this information and select the seed which comes nearest to your requirements. If possible, secure seed of a variety having a known record for hardiness in the North and see that the record is the best.

The Dakota Improved Seed Company makes a specialty of Disco Registered Alfalfas, but handles commercial alfalfa seed from the Dakotas and Montana under three brands. These brands apply only to commercial seed and must not be confused with Disco Registered or Disco Pedigreed Alfalfas.

DISCO BRAND—A trade-mark brand of the highest quality obtainable. No seed is put out under this brand that is not strictly right as to both purity and germination. Wherever a trace of impurities are present they are guaranteed to be perfectly harmless or inert.

EMERALD BRAND—A standard brand, and seeds listed here are those that for some reason cannot be classed as Disco brand. Emerald brand seed is usually one of the best business propositions. Results from this brand are often fully equal to those from the Disco brand and the price is often considerably lower. No harmful or noxious weeds, such as dodder, Canada Thistle, Quack Grass or others of this nature, are allowed in the Emerald Brand.

OPAL BRAND, and lower grades of alfalfa seed usually contain quite a percentage of Green Foxtail, Russian Thistle or brown discolored seeds of alfalfa. Under some conditions one may be warranted in using this class of seed, but thorough inspection and the fullest precautions should always be taken. When better grades can be secured at reasonable prices the lower grades should be avoided.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Handling the Alfalfa Crop

THE HAY CROP—Some difficulty is usually experienced in harvesting and curing the first crop of hay in sections where there is sufficient rainfall to grow the crop without irrigation. The first growth of alfalfa usually gets ready to be cut for hay early in the month of June, just about the time that many regions in the Middle West have abundant rainfall. The ideal stage to cut the alfalfa is in early bloom, but one has to be governed in cutting this first crop perhaps more by the conditions of the weather than by the condition of the crop. Rain on new-cut alfalfa very seriously injures it. In fact, it usually causes it to lose its leaves, which are the most valuable part of the alfalfa hay. The best practice is to cut at one time only what can be handled quickly and easily and gotten under cover. It is customary to begin mowing in the morning of a bright day, rake into windrows in the afternoon when the hay becomes wilted, turn this the next forenoon and in the afternoon stack it or put it up in small cocks, preferably the latter, and allow it to cure for several days before stacking it or putting it in the mow. An ideal way is to get the hay into cocks as soon as possible and have small cock covers to protect the number that one is likely to require at a single cutting. By this method one can almost always get the hay under cover without injury, and the saving of one crop of hay will easily pay for a large number of covers. In the cutting of the second, third or fourth crops, one does not usually encounter these adverse conditions, but they are occasionally present and the same practice is followed.

THE SEED CROP—The conditions most favorable for the production of alfalfa seed have been given a great deal of study, but we are still very much in the dark. Many theories have been presented, but most of these fail when put to the test in different localities.

Alfalfa produces seed readily in most sections having an annual rainfall from 15 to 25 inches. Where the precipitation is greater than this seed production is usually light. Alfalfa produces seed best during a dry, hot season. Seed may be saved from either the first or second crop. Throughout the southern half of South Dakota and Minnesota and in most irrigated sections, the second crop is commonly left for seed. When the seasons are short and precipitation light, the first crop is the safer of the two. At the Highmore Experiment Station I succeeded in securing some good crops of alfalfa seed by leaving the first crop for the



First car shipment of Disco Registered Alfalfa Seed on "Largest Single Order of Alfalfa Seed Ever Placed," as reported by "Chicago Grain Dealers' Journal" and other papers.

purpose, but never succeeded in obtaining a good yield of seed from the second crop. In the vicinity of Mitchell I have secured good yields of seed from both first and second crops, with perhaps the advantage with the first crop. When one considers, however, that he can secure a crop of hay and then a crop of seed by using the second crop for seed this advantage is very much offset.

Alfalfa should be cut for seed when about two-thirds or three-fourths of the pods have turned brown. Various machines are used for cutting. One of the best, I think, is a mowing machine with a bunching and dropping attachment.

Alfalfa may be threshed from the field or stacked in the ordinary manner and threshed from the stack. A clover or alfalfa huller is the best machine for the purpose, but where there is none available, an ordinary threshing machine with clover hulling attachments will do very well and perhaps is equal to the special huller.

The uncertainty of securing a good yield of alfalfa seed has made alfalfa seed growing somewhat limited in extent. Where alfalfa seed production can be depended upon this is one of the most profitable crops to grow, but in most sections of the country the hay crop is much safer.

PASTURING ALFALFA—Alfalfa fields should not be pastured the first season and much care should be exercised in pasturing them the second year. In fact, many recommend that pasturing should be left till the third year. Alfalfa is one of the most valuable pasture crops that we have, and yet there are wide differences of opinion as to its general value. Some stockmen who seem to know just exactly how to handle the crop say that it makes excellent pasture for hogs, cattle, horses and sheep, and there are other stockmen on the other extreme, who say that it is adapted only as hog pasture. This is a subject that one must study carefully with his own stock and his own conditions. I would not advise anyone to suddenly change from any regular pasture to alfalfa. Begin gradually, study your stock, the conditions of the crop, and other factors influencing your stock at the time, and then determine to just what extent you can use alfalfa as a pasture crop. There is hardly an exception to the opinion that alfalfa makes excellent hog pasture. The differences of opinion seem to be on its use for other kinds of stock. In certain sections of the West it is very apparent that they depend almost entirely upon alfalfa as hay and pasture for all kinds of stock. Whether it is because the stock have become educated or adapted to it in those sections or not, I cannot say. It is true, however, that wherever alfalfa can be used as pasture for stock, it will furnish one of the cheapest and most valuable forms of protein or muscle-forming food that it is possible to obtain.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.



First cutting of alfalfa from a 90 acre field near Mitchell, S. D. This field yielded over 2½ tons per acre at this cutting.

Organized Effort in Alfalfa Introduction

A great deal has been said about alfalfa in the past few years. Better Farming Associations, Development Associations, County Farm Bureaus, Agricultural Improvement Associations, Railroad Companies, Agricultural Implement Companies and many other organizations, private, corporate, state and national, have instituted propagandas having for their object the extension of alfalfa growing throughout the country. Some of these organizations are clinching the educational work that is being done by instituting a campaign of seed distribution. This is being done particularly where county agricultural agents or superintendents of agriculture are located and active in the work. Through them a personal canvass of the farmers can be made and fields of from one to several acres can be located where no alfalfa seed would be sown through the ordinary methods of publicity. Through these organizations and this line of work, thousands of acres of alfalfa are to be planted during the next few years.

In October, 1913, the **West Central Minnesota Development Association** took up this proposition with the writer as representing the **Dakota Improved Seed Company**. This Association represents seventeen counties in west-central Minnesota, in each county of which there is located an active agricultural agent working under a separate county organization or Farm Bureau. This Association is the leading Association of this character in this line of work. The officers called the writer in conference to formulate plans and methods of handling the distribution of alfalfa seed through the 17 counties.

A plan was formulated by which from three to five or more cars of **Disco Registered Alfalfa Seed** were to be purchased by the Association during the season and the seed furnished to the farmers at cost to the Association. According to the plan each county will use from 100 to 300 bushels of seed and the total order will probably be considerably above \$25,000.00. The writer as Secretary of the **Dakota Improved Seed Co.** was designated as the official representative of the Association to handle the proposition and secure all of the seed that would be used by the Association during the season.

Before going ahead on this proposition, the officers of the Association took the matter up in detail in conference with the Dean of the Minnesota College of Agriculture, the Superintendent of Farmers' Institutes for Minnesota and other advisers, who gave their stamp of approval to the entire proposition.

At about the same time that these negotiations were in progress the **North Dakota Better Farming Association** took up the same proposition with the writer, and the **Dakota Improved Seed Co.** was officially authorized to secure **Disco Registered Alfalfa Seed** for the **North Dakota Association** to be distributed through the Agricultural Extension Agents throughout the state. At this time it is anticipated that this organization will use an amount equal to that of the **West Central Minnesota Development Association**.

The fact that the **Dakota Improved Seed Co.** was designated by these two prominent associations after careful and thorough investigation to handle the alfalfa seed proposition for them, is looked upon as an official recognition of the kind of work that this company has done and is continuing to do with this important crop. At the present time negotiations are in progress with many other local and state organizations working toward a further distribution of **Disco Registered Alfalfa Seed** in other sections of the country.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Weeds in Alfalfa

The subject of weeds in alfalfa comes up first in the purchase of seed to sow. It isn't altogether the number of weed seeds present in the seed so much as it is the kind. A large proportion of the alfalfa seed grown without irrigation in the Middle West contains green foxtail or pigeon grass. In fact, it seems to be very difficult to secure alfalfa seed without a trace of green foxtail or Russian thistle present. The main objection to this kind of seed in alfalfa, if it is present in only small quantities, is the space it takes up rather than any noxious character of the seed. As far as the presence of this seed is concerned, I would not consider it very seriously only in so far as it affects the percentage of the purity of the sample. There are other weed seeds which would come in the same category, namely, yellow foxtail, lamb's quarters, old wild grass, and some others.



Dodder covering alfalfa plants. The white spots and the mass of white near the center are the flowers of the dodder. The thread-like stems running horizontally from plant to plant are the vine of the dodder.

look a great deal alike, but which vary somewhat in size. remove most of the small seeded dodders, but will not remove altogether the large seeded dodder.

The dodders are all parasitic plants, the seeds of which germinate in the soil. As soon as they appear above the ground they begin a sort of spiral twisting to find a suitable green plant upon which to feed. If the dodder happens to be one of the alfalfa dodders, as soon as it comes in contact with an alfalfa plant in its spiral journey, it twines around the plant and sends out small, root-like projections into the alfalfa tissues and takes its food from the alfalfa plant. As soon as this is accomplished, the dodder plant rots off at the surface of the ground and depends entirely thereafter upon the alfalfa plant for its nourishment. The dodder plant then grows very rapidly and branches freely, but produces no conspicuous leaves. The leaves happen to be nothing but small scales. The stems of the dodder are very fine and thread-like, but grow and branch very freely, so that a single seed may in a favorable year give rise to a mat of dodder covering almost a square rod. The dodder can be very easily discovered in an alfalfa field by its yellow or orange colored vine.

The dodder has become so common in commercial alfalfa seed from certain districts that one must always be on the lookout for it. Even though the test of a sample shows no dodder present, there may be a few seeds somewhere in the stock, and so it is well to keep watch of the field and if any dodder appears, remove it before it has spread over any large area and before it has produced any seeds. It is a comparatively easy matter to remove a few plants from the field by cutting the infected alfalfa close to the ground with a sickle or a scythe. If a field is badly infected, about the only way to dispose of the dodder is to plow up the field.

In sections of the country where the rainfall exceeds 25 inches, Kentucky Blue Grass proves quite a serious pest to some alfalfa fields. In such localities, alfalfa fields are often short lived because of the presence of the blue grass. One should be very careful not to allow this to get started, for it spreads very rapidly. In the dryer sections the alfalfa is able to hold its own with blue grass or any other of our native or cultivated grasses, even Russian Brome grass. This latter is considered to be able to drive out almost anything, but I find that it is not able to drive out alfalfa where the alfalfa has anywhere near favorable conditions.

Are you interested in other seeds besides alfalfa? If so, send today for the Disco Seed Book. It is yours for the asking.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Dodder

What is considered the most noxious weed in alfalfa is the dodder. There are various kinds of dodder, the seeds of which Careful cleaning of the seed will

The presence of a trace of this seed in alfalfa stocks is not looked upon very seriously by the trade, or by the experiment stations, but one occasionally runs across samples of seed which contain up to 15 or 25 per cent of sweet clover by weight. Such samples should be avoided. It is difficult for even a specialist to determine sweet clover when it is mixed with alfalfa seed and it is almost impossible for a farmer not experienced in this line of work.

Clovers—A Cheap Fertilizer



Upper Photo, Clover Seeded in Rye

Nodules on Roots of Medium Red Clover Produced by Thorough Inoculation.

The clovers belong to the group of plants known as legumes, which serve to increase the nitrogen in our soils. This is done by certain bacteria which grow and develop on the roots of the leguminous plants. Every rotation of crops on the farm should include clover or some other plant of this family. In experiments conducted by the Minnesota Experiment Station it has been shown that the sowing of six pounds of clover seed with every acre of wheat increased the yield of wheat on an average of over three bushels per acre. This is getting good pay for the clover seed, even at the high prices that sometimes prevail. We advise that a certain portion of every farm be kept in clover, but if this cannot be done, wherever small grain is sown the practice mentioned above of sowing clover seed with the grain is far better than sowing the grain alone.

Sow Only Northern Grown Seed

We have tested over fifty stocks of red clover seed in South Dakota and find that seed from northern sources is the most desirable for the northern states. In fact, no southern grown stocks tried were nearly as good as the northern grown seed. This point is of vital importance to clover growers in the Northwest. One can better afford to pay double the price for seed than to buy southern seed. In most cases western grown seed has proved better than eastern grown, though this is not always the case.

Disco **MEDIUM RED CLOVER**—This is the common kind of red clover. Used alone or with timothy or in other grass mixtures. With our present increased facilities for cleaning we can offer the very highest grade of seed brought up strictly to our Disco standard. We handle only northern grown seed.

MAMMOTH RED CLOVER—Ten days or two weeks later than the medium clover and not so commonly grown. We cannot always furnish South Dakota grown seed of this clover, but will offer the best seed obtainable at prices governed by the condition of the market.

ALSIKE CLOVER—Often used in place of medium clover, especially in wet places. One of the best clovers to use with timothy. Longer-lived than medium clover.

WHITE OR DUTCH CLOVER—Used in lawns and pastures.

SWEET CLOVER—There is considerable agitation at present about sweet clover. The experiment stations of the central and northwestern states are recommending sweet clover for hay and pasture as well as a soiling crop. It produces an immense amount of forage under conditions where many other crops would fail. It will give better returns on poor soil than any other crop we know of and paves the way for other crops to follow. The annual variety should not be used, but either the white or the yellow Biennial varieties are valuable.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Consult Your State Agricultural Experiment Station

Whenever you wish the best information about any farm crop or anything else in connection with farm operations, the best place to get it is from your state experiment stations. Your state employs men who are experts along particular lines to conduct investigations and give advice and information on their subjects. Why not use them and get all the information you can from them?

If you are planning to raise alfalfa write to your state station or to the man in charge of the alfalfa work at the station for advice and bulletins or other information on this crop.

There may be other sources of reliable information, but the state experiment stations can be depended upon to give you the best there is.



A portion of a field test of the hardy and non-hardy types. On the right, Peruvian alfalfa from Colorado grown seed. On the left, Baltic alfalfa from Colorado grown seed. Field seeded March 17, 1909; view taken March 25, 1911. (Bul. 181, Col. Agr. Exp. Sta.)

We consult station bulletins very freely for our information on alfalfa and usually find what we go after. We work hand in hand with the agronomists and farm crop experts of the state experiment stations and the U. S. Department of Agriculture and try to follow out just as far as practicable all the suggestions and advice given by them.

We often make suggestions to these men and we find them just as willing to act on our advice as they are to give it to others.

Our advice to you as a farmer is to know the men that you and the other citizens of your state employ to do this work for you. Not only know them, but use them, and you can't help but be better off because of this closer acquaintance.

Visit your state experiment station once in a while, but if you can't do this, at least keep in touch with it and the work that is being done there.

Alfalfa References

Space here permits of mentioning only a few of the publications on alfalfa. Some of these can be read with pleasure and profit by anyone interested in this important crop:

- Book of Alfalfa, by F. D. Coburn, Orange Judd Co., New York.
- Alfalfa in America, by Joseph E. Wing, Sanders Pub. Co., Chicago, Ill.
- Alfalfa in the Northwest, by W. A. Wheeler, Dakota Improved Seed Co., Mitchell, S. D.
- Alfalfa Growing in Illinois, Farmers' Institute Bulletin No. 18, Springfield, Ill.
- Some New Alfalfa Varieties for Pastures, by George W. Oliver, Bulletin No. 258, Bureau of Plant Industry, U. S. Dept. of Agriculture.
- Cold Resistance of Alfalfa and Some Factors Influencing It, by Charles J. Brand and L. R. Waldron, Bulletin No. 185, Bureau of Plant Industry, U. S. Dept. of Agriculture.
- Breeding Drought-Resistant Forage Plants for the Great Plains Area, by Arthur C. Dillman, Bulletin No. 196, Bureau of Plant Industry, U. S. Dept. of Agriculture.
- Grimm Alfalfa and Its Utilization in the Northwest, by Charles J. Brand, Bulletin No. 209, Bureau of Plant Industry, U. S. Dept. of Agriculture.
- Alfalfa, by J. M. Westgate, Farmers' Bulletin No. 339, U. S. Dept. of Agriculture.
- Variiegated Alfalfa, by J. M. Westgate, Bulletin No. 169, Bureau of Plant Industry, U. S. Dept. of Agriculture.
- Alfalfa, The Relation of Type to Hardiness, by Philo K. Blinn, Bulletin No. 181, Colorado Experiment Station, Fort Collins, Colo.
- Alfalfa as a Field Crop in South Dakota, by A. N. Hume and Samuel Garver, Bulletin No. 133, South Dakota Experiment Station, Brookings, S. D.
- Alfalfa, by L. R. Waldron, Bulletin No. 95, North Dakota Experiment Station, Fargo, N. D.
- Alfalfa Management in Iowa, by H. D. Hughes, Bulletin No. 137, Iowa Experiment Station, Ames, Iowa.
- Alfalfa Growing in Michigan, by V. M. Shoesmith, Bulletin No. 271, Michigan Experiment Station, East Lansing, Mich.
- Alfalfa in Ohio, by W. M. Cook, Circular No. 113, Ohio Experiment Station, Wooster, O.
- Alfalfa Management, by C. W. Pugsley, Bulletin No. 120, Nebraska Experiment Station, Lincoln, Neb.
- Co-operative Experiments in Alfalfa Culture, by H. J. Wheeler, Bulletin No. 152, Rhode Island Experiment Station, Kingston, R. I.
- Alfalfa Seed Production, by Philo K. Blinn, Bulletin No. 191, Colorado Experiment Station, Fort Collins, Colo.


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Grasses Lawn Grass


A good lawn is one of the most attractive features of the home. The first requisite of a good lawn is the right kind of seed. Aside from the importance of sowing good seed, the most essential thing is to prepare the soil very thoroughly before the seed is sown.

The most desirable seed for a lawn anywhere in the western and central states is Kentucky blue grass. White clover produces quicker results and is very desirable in a mixture with Kentucky blue grass. Aside from these two plants there are comparatively few kinds that are used for a lawn.

Before seeding the lawn the ground should be well spaded or worked up in some manner to the very finest state of tilth. If, in scraping or grading, small areas of subsoil are uncovered, these should be removed for a few inches and black soil added. If this is not done the lawn will appear patchy and these spots will always be noticed. When the seed is sown the soil should be well firmed and not allowed to remain loose. For lawn purposes a large amount of seed is sown. The quantity of seed is the smallest item, and quicker results are obtained with a heavy seeding. From 40 to 100 pounds per acre are used.

 Our Disco mixture contains the choicest varieties known. This mixture is adapted to a variety of conditions. If, however, you have unusual conditions we will make up a mixture for your special location, if you will give us a statement of such conditions.


Kentucky Blue Grass

 This will always be the standard lawn grass and is also valuable to use in pasture mixtures where there is a reasonable amount of moisture. Kentucky blue grass seed of poor or uncertain quality can be bought at a much lower price than we charge for our Disco brand. We purchase the very choicest seed obtainable, regardless of price.



**Russian Brome Grass (*Bromus inermis*),
Showing Two Types of Plants**

Timothy

 This is still the leading grass. There is probably more acreage of timothy grown each year than any other one kind of grass in this section of the country. It is comparatively easy to procure a stand of timothy and it is usually reasonable in price. The season of 1912 was very favorable for the production of timothy. Good seed is more plentiful than it has been for three years and prices are consequently lower. Our seed is practically all South Dakota grown and we guarantee it for purity, quality and germination.

Russian Brome Grass

All farmers who have grown this grass have a great deal to say about it. Sometimes their say is one way and sometimes the other. Any one who has grown it either likes or dislikes it. We think that it has more of a place in the northern part of South Dakota and North Dakota than in the southern part, though there are advocates of *Bromus* almost everywhere you go.

Slender Wheat Grass

A very valuable native grass of the north central states. Often but erroneously called Western Rye Grass. This grass has not been extensively sown in the Northwest, but wherever used produces good yields of hay of good quality. It is well adapted to a dry climate and is worth giving a trial as a hay grass anywhere in the region where it is native. Good seed is not always available.

FREE! With every order for grass, clover or alfalfa seeds at catalog prices to the amount of \$25 or over we will send our Improved Cyclone Seeder free upon request. Only one will be sent as a premium to any one customer, however large the order. It will not be sent unless you ask for it.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Disco Alfalfa Trials

The Dakota Improved Seed Company believes fully in the handling of alfalfa seed on its "performance record" or "making good." Nothing ever permanently succeeds that hasn't back of it a foundation of real merit. As soon as this company was formed the policy was adopted of backing up the Agricultural Experiment Stations in their work with farm crops.

With Disco Alfalfa the situation was somewhat different than with some of the other crops. Improved strains of alfalfa were being developed and introduced by the Dakota Improved Seed Company, so the plan was adopted of furnishing samples of Disco Registered Alfalfas sufficient for trial gratis to all the state experiment stations and county demonstration farms and farm bureaus. At the present time there are upwards of a hundred institutions of this kind co-operating with us in this work and the number is continually increasing.

The plan of having every experiment station, county agent and alfalfa investigator in the United States and Canada test in trial plots exactly the same series of Disco Alfalfas is the most comprehensive series of alfalfa tests ever planned or carried out. The results that have been secured to date are most gratifying.

We have been more than surprised to find our Disco Alfalfas leading the procession in states where hardness has so far been a minor consideration. Disco Alfalfas have been developed in the Northwest for hardness combined with high production. The early returns from tests in Illinois, Missouri, Michigan, New York and other states go to show that the same alfalfas are "making good" in other states as well.

We have had a large demand from various schools, organizations and individuals for a series or collection of Disco Registered Alfalfas for trial plots either for competitive contests or merely for trials to determine how alfalfa will grow in particular localities and what kind of alfalfa would do best. This demand is so great at the present time that it is impossible for us to furnish seed to all of them gratis. To meet this situation we have made up two Disco Alfalfa Collections solely for trial plots and are offering them at the bare cost of the seed itself without taking into consideration the cost of packing, nor the cost of the alfalfa book and instructions accompanying each collection.

Disco Junior Alfalfa Collection

10 Cents Postpaid.

- One-half ounce each of
 - 2 Disco Registered Pedigreed Alfalfas.
 - 2 Disco Registered "Native" Alfalfas.
 - 2 Commercial Alfalfas from different sources.
- One ounce of seed for outside rows.
- One Disco Alfalfa Book.
- One set of plans and instructions for planting and handling plot.

The seed furnished in the Disco Junior Alfalfa Collection is sufficient to plant from one-tenth to one-fourth acre, if desired, depending on method of planting, or the test can be conducted on a very few feet of ground in the garden plot of a town lot.

Disco Senior Alfalfa Collection

25 Cents Postpaid.

- One ounce each of
 - 3 Disco Registered Pedigreed Alfalfas.
 - 4 Disco Registered "Native" Alfalfas.
 - 3 Commercial Alfalfas from different sources.
- Two ounces of seed for outside rows.
- One Disco Alfalfa Book.
- One set of plans and instructions for planting and handling plot.

The seed furnished in the Disco Senior Alfalfa Collection is sufficient to plant one acre or less, depending on method of planting.

Special Alfalfa Contest Offer

To the first County Superintendent of Schools or County Agricultural Agent in each one of the states north of and including the 37th parallel of latitude who will organize a boys' alfalfa contest and make application to the Dakota Improved Seed Company, we will furnish gratis for this contest 100 or less as required of the Disco Junior Alfalfa Collections. The contest can be arranged to suit the one in charge. The only condition is that the Dakota Improved Seed Company be furnished a copy of the report of the contest.

To any other school, institution or organization wishing to conduct an alfalfa contest the Disco Junior or the Disco Senior Alfalfa Collections will be furnished in lots of 25 or more at 8 cents each for the Junior and 15 cents each for the Senior Collections.

One or other of these collections or offers should interest every farmer, farm boy or girl, owner of a farm, rural school teacher, county superintendent of schools, county agricultural agent, agricultural school teacher or principal, or anyone else engaged in farming or interested in agricultural pursuits in any way.

Prices of Alfalfas, Clovers and Grass Seeds are given on Inside Back Cover.

Disco Alfalfa Seed

There is no one crop about which there is more written and more agitation than alfalfa. It has been under cultivation for thousands of years and yet there is no crop of nearly equal importance about which so little is known over a large part of the United States and Canada. For this reason we have written to considerable length in the Disco Seed Book and the Disco Alfalfa Book about this important crop. We have given full description and history of the so-called varieties, explanation of the commercial terms in common use as applied to alfalfa, comprehensive cultural directions for growing alfalfa and also a full outline of our method of growing and handling alfalfa seed.

It will be worth while for anyone interested in alfalfa to read these pages and learn exactly what is meant by the terms Commercial Alfalfa Seed, Disco Registered Alfalfas, Disco Pedigreed Alfalfas, Hardy Types, Acclimatization, Inoculation and many others that are discussed. It is also important to know just what value can be placed upon the commercial terms, such as Turkestan, Montana, Western, European and others when applied to alfalfa seed.

To lend interest to the descriptions we have also told how one organization is using about \$30,000.00 worth of Disco Registered Alfalfa seed this season.

Prices of Alfalfa Seed

In effect January, 1914. Subject to change without notice.

Write for special prices on larger quantities or special stocks. There is no alfalfa proposition too large or too small for us to handle.

Following prices include bags, but not postage, express or freight. If to go by mail add 8 cents per pound for postage. Seeds do not take special parcel post rates.

For full description of terms used in designating our various stocks of alfalfas, clovers and grass seeds and cultural directions for same we refer to pages 49 to 64 of the Disco Seed Book or pages 1 to 16 of the Disco Alfalfa Book.

	1 lb.	4 lbs.	20 lbs.	100 lbs.
Commercial Alfalfa.				
Dakota Grown, Disco Brand.....	\$0.30	\$1.00	\$4.50	\$20.00
Dakota Grown, Emerald Brand.....	.25	.80	3.50	16.00
Disco Registered Alfalfas.				
Disco 28, Disco 38 and other specially desirable strains of over 25 years' performance record in South Dakota or Montana .....	.50	1.40	6.00	28.00
Disco Numbers, covering well selected strains of over 10 years' record in South Dakota.....	.40	1.25	5.50	25.00
Disco Pedigreed Alfalfas,				
Including Disco-Baltic, Disco-Grimm and pedigreed selections from these and other well known hardy alfalfas..	1.00	3.50	15.00	

For full descriptions of the above see pages 1 to 16 of the Disco Alfalfa Book or pages 49 to 64 of the Disco Seed Book.

Prices of Clovers and Grasses

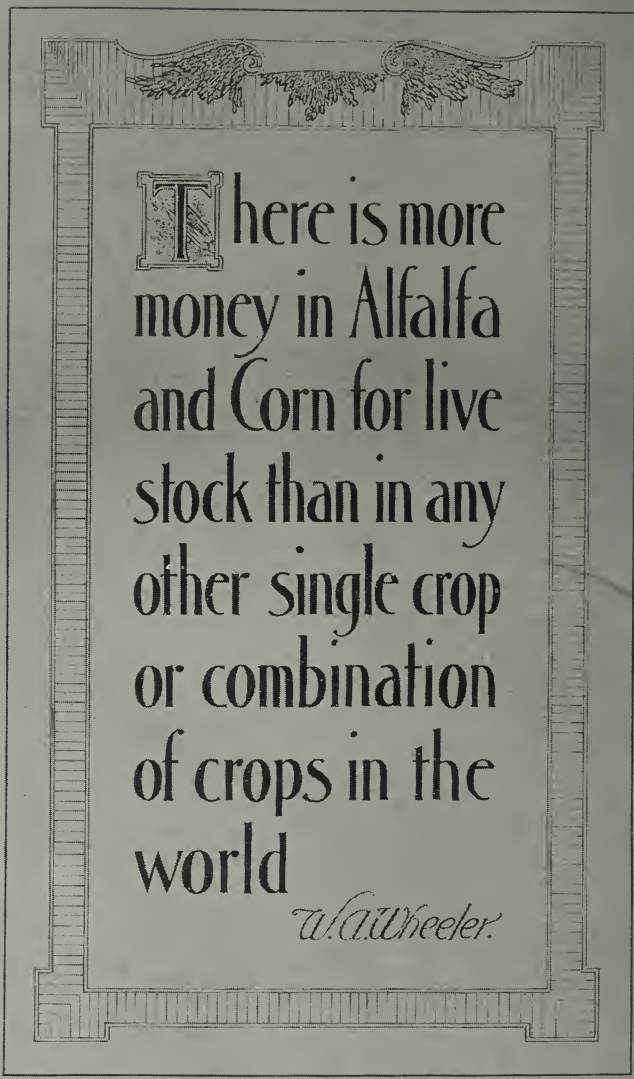
In effect January, 1914. Subject to change without notice.

Bags included at these prices. If to go by mail add 8 cents per pound for postage.

For descriptions of clovers and grasses we refer to pages 61 and 63 of the Disco Seed Book or pages 13 and 15 of the Disco Alfalfa Book.

	1 lb.	10 lbs.	Bu.	100 lbs.
Medium Red Clover, Disco Brand.....	\$0.25	\$2.25	\$12.00	\$20.00
Medium Red Clover, Emerald Brand.....	.25	2.00	11.00	18.00
Mammoth Red Clover, Disco Brand.....	.25	2.25	12.00	20.00
Mammoth Red Clover, Emerald Brand.....	.25	2.00	11.00	18.00
Alsike Clover, Disco Brand.....		Write for Prices.		
Alsike Clover, Emerald Brand.....		Write for Prices.		
White or Dutch Clover.....	.40	3.50	.....	.....
Sweet Clover, White or Yellow-Flowered.....		Write for Prices.		
Timothy, Disco Brand.....	.15	1.00	4.25	9.00
Timothy, Emerald Brand.....		.90	3.75	7.75
Russian Brome Grass.....		Write for Prices.		
English Blue Grass.....		Write for Prices.		
Slender Wheat Grass.....		Write for Prices.		
Kentucky Blue Grass.....	.25	2.00	.....	18.00
Disco Lawn Mixture.....	....	.25	2.25	17.50

Full descriptions of Alfalfas, Clovers and Grasses given on pages 1 to 16.



There is more
money in Alfalfa
and Corn for live
stock than in any
other single crop
or combination
of crops in the
world

W.A. Wheeler.